CORRESPONDENCE/MEMORANDUM

State of Wisconsin

DATE: October 26, 2000 FILE REF: [Click **here** and type file ref.]

TO: File

FROM: G. Fritz Statz

SUBJECT: Technical Memorandum 2e-Estimation of Sediment Bed Properties for the Lower Fox River: Addendum (4 reach effort)

This purpose of this memo is to provide an addendum to state changes in the development of Technical Memorandum 2e-Estimation of Sediment Bed Properties for the Lower Fox River. There were three changes to the GIS interpolation approach described in the original TM2e documentation. First, the river was divided into four segments ("reaches"), with each reach undergoing a slightly different method of interpolation depending on its hydrologic characteristics. Second, data from the 1998 Blasland, Bouck, and Lee, Inc, study was added along with the 1998 Supplemental Sediment Data Sample Collection. Third, the data sets used in the interpolation were filtered so that more recently collected data superseded any nearby older data. This approach helped to isolate modeled changes in PCB concentration to the spatial dimension only.

The method for generating the grids has changed but section 5 has not been updated to show the changes of the grids. The grids have been provided to contractors for utilization in the generation of the Fox River RI/FS.

Below is a more detailed description of the modifications, under the headings from the original Technical memorandum, for the sections to which the changes are applicable.

4.1 Selection of Method Parameter Values

The river was divided into 4 distinct reaches. Reach 1, Little Lake Butte des Morts, required a 400 meter fixed radius of influence to allow for complete coverage of the water area. Reach 2 is the river segment between the cities of Appleton and Little Rapids. Because of the more linear nature of the Fox River immediately below Little Lake Butte des Morts, a method had to be devised to account for the uni-variate geometry of the reach. It was determined that a fixed radius equal to one-third the average river width would minimize the influence of non-related deposits. For Reach 2, averaging 43 separate locations of river width resulted in a radius (i.e., fixed radius of influence) of 79 meters. Reach 3 is the river segment between the cities of Little Rapids and De Pere. Reach 4 is the final river segment between the cities of De Pere and Green Bay. In these reaches 3 and 4 there was no change in the 1000 meter fixed radius of interpolation.

4.2 Data Sources

Data was added from 1998 Blasland, Bouck, and Lee, Inc, for the PCB and bulk density parameters. Data was also added from the 1998 Supplemental Sediment Data Sample Collection for PCB and bulk density parameters.

4.3 Data Handling Operations

The data was divided into three temporal groups: 1989-1992, 1993-1995, and 1996-1998. The data to use was selected using a radial filtering technique. All of the points in the 1996-1998 were used. A point from the next oldest time span, 1993-1995, was only used if it was outside a set radius. This process was used again to select points from the oldest time span, 1989-1992. If a point from the 1989-1992 set was outside the set radius it was used in the final interpolation. By using the most recent data for an area temporal changes were removed.

The radius was determined by analyzing a sample data set and creating a relationship between similar ranges of PCB concentrations and the distances between points of a specific range. The radius was set at 133m. Once all the data sample points were filtered, interpolation of the sample parameters was conducted on a reach-by-reach basis under the pre-determined radius of influence.